



**Washington State  
Department of Transportation**

# **Statewide Snow and Ice Plan**

## **2011-2012**



This document supersedes the 2010-2011 Snow & Ice Plan

# Introduction

The Washington State Department of Transportation (WSDOT) maintains all State Routes (in accordance with RCW 47.24.020), US Routes, and Interstate Highways throughout Washington. The states climate is extremely diverse, including temperate rain forests near the coast, high mountain passes in the Cascades, desert like Central Washington plateaus, and the rolling wheat fields of the Eastern Washington Palouse. During winter months, the WSDOT Snow and Ice Program play's a significant role in providing mobility and facilitating the movement of goods and services. The WSDOT Snow and Ice Plans purpose is to provide guidance and direction on efficient, effective and consistent operation of snow and ice control. In addition, this plan will help WSDOT support our Chemical Priority Program to maintain consistent levels of service between regions and maintenance areas. This statewide Snow and Ice Plan will be supplemented with six regional plans and multiple maintenance area plans which provide more specific details on the accomplishment of statewide goals at the local level. The attached plan includes the following sections:

**Roadway Treatment Goals:** Delineated by color, these maps displays different roadway sections within the state and establish recommended treatment levels to maintain consistency, regardless of region or maintenance area boundary.

**Winter Maintenance Accountability Process (MAP) for Snow and Ice Level of Service and Data Collection Procedures:** Describes the process used to evaluate the level of service, outlines the data collection process used to record all sand, solid and liquid deicer applications and describes the weather forecasting services provided to WSDOT.

**Snow and Ice Training and Chemical Slipperiness Memorandum:** Describes the WSDOT training program, the checklist for annual review and guidelines for operation of wing plows.

**Statewide Storage Facilities:** Includes a series of maps showing locations of winter maintenance storage facilities statewide, and a map displaying liquid anti-icer type by area.

**Field Testing and Sampling Procedures:** Defines consistent sampling procedures to ensure we are getting quality deicing products that meet the state contract and Pacific Northwest Snow-fighters (PNS) specifications.

**Application Guidelines:** FHWA established recommendations for applications of anti-icing products in a variety of different weather conditions and temperature ranges.

This plan will be revised and updated as needed with input from numerous sources. The 2011-2012 Snow and Ice Plan will be accessible in an electronic format through the WSDOT intranet at: <http://wwwi.wsdot.wa.gov/MaintOps/> or on the Internet at: <http://www.wsdot.wa.gov/maintenance/>. For questions, or comments please contact M & O Branch Manager Monty Mills at: [millsm@wsdot.wa.gov](mailto:millsm@wsdot.wa.gov) or call (360) 705-7803.

# The WSDOT Chemical Priority Program

WSDOT is known nationally as a leader in its winter maintenance program. Yet, the Department recognizes the success of this program is largely dependent on highway users who obey traffic laws and adjust their driving for weather and road surface conditions that might exist during cold weather.

Since the early 1990's, the WSDOT Snow and Ice program has increased its use of chemical anti-icers and deicers as an alternative to sand and other abrasives. This trend follows industry research and publications that have indicated sand can create air quality issues and contributes to stream degradation. Further, it is well known that sand, on its own, does not have ice melting properties and can only enhance traction if it sticks to existing snow and ice that has bonded to the roadway surface. Chemical anti-icers prevent the bond between snow and ice and the roadway surface, and either by themselves or in combination with sand, are a much more effective treatment strategy than sand alone. Industry research and publications suggest that anti-icing chemicals are often the better option, because they are considered to be a pro-active, rather than reactive winter maintenance strategy, and therefore more effective for keeping or returning the roadway to bare pavement during and after inclement weather.

The move to a chemical priority program provides higher level of service than in the past. This program includes:

- Less potential for ice or snow at a treated location, allowing for more movement of goods and services.
- Less frequent mountain pass highway closures.
- A quicker return to bare and wet road conditions.
- Better air quality through less sand and abrasive use.
- Ability of WSDOT Maintenance crews to perform other tasks since chemicals work more effectively over longer periods.

As winter driving conditions have improved through use of anti icing, we have observed a corresponding increase in driver risk taking. This increase may be due to more drivers having access to four-and all-wheel drive vehicles (e.g., more SUVs, etc), WSDOT's effective anti-icing treatments, or less frequent roadway icing in cold weather. WSDOT's goal is to reduce fatal and serious crashes to zero, and these challenges and others like them will require innovative solutions, an ongoing vigorous partnerships with highway safety enforcement agencies, education institutions, and direct communication with the traveling public.

WSDOT continues to evaluate alternatives to chloride anti-icers such as acetates, formates, and agricultural by-products. These alternative products are prohibitively expensive under current budget conditions, and many of the alternative products have been found to entail a risk of significant negative environmental consequences. These alternatives are still being analyzed by the winter maintenance research community and have very limited use around the country. WSDOT continues to follow the development with the goal of identifying a reasonably priced, environmentally-friendly product. Salt and liquid chloride anti-icers remain the products of choice as their performance is unmatched.

WSDOT uses only products approved by the Pacific Northwest Snowfighters (<http://www.wsdot.wa.gov/partners/pns/>), the premier winter maintenance materials analysis organization, of which WSDOT is a charter member.

All WSDOT winter materials are corrosion inhibited. The cost of corrosion inhibited products is significantly higher than non-inhibited products, but WSDOT has committed to using these products to help prevent corrosion.

# Contents

<b>Introduction</b>	.....	I-1
<b>Chapter 1</b>		
	Roadway Treatment Goals.....	1-1
	Other Facilities .....	1-2
	Treatment Goals.....	1-3
	Treatment Level Maps .....	1-4
<b>Chapter 2</b>		
	Winter Map Snow & Ice Level of Service (LOS) .....	2-1
	Data Collection.....	2-3
	Statewide Weather Forecasting .....	2-5
<b>Chapter 3</b>		
	Snow & Ice Training Program .....	3-1
	Annual Review Procedures .....	3-2
	Wing Plow Guidelines .....	3-4
<b>Chapter 4</b>		
	Statewide Storage Locations .....	4-1
	Northwest Region Map .....	4-2
	North Central Region Map.....	4-3
	Olympic Region Map .....	4-4
	Southwest Region Map.....	4-5
	South Central Region Map.....	4-6
	Eastern Region Map .....	4-7
	Anti-icer Map .....	4-8
<b>Chapter 5</b>		
	Field Testing Procedures .....	5-1
	Forms.....	5-4
	Specifications.....	5-9
<b>Chapter 6</b>		
	WSDOT Application Guidelines.....	6-1
	FHWA Application tables.....	6-3
<b>Appendices</b>		
	<i>Appendix I</i> .....	Deicer Storage Tank Manual
	<i>Appendix II</i> .....	Snow School
	<i>Appendix III</i> .....	Chemical Slipperiness Memo